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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,671	11/20/2001	Max Amon	017750-582	9038
21839	7590	05/21/2004	EXAMINER	
BURNS DOANE SWECKER & MATHIS L L P			GABOR, OTILIA	
POST OFFICE BOX 1404			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22313-1404			2878	

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/988,671	AMON ET AL.	
	Examiner	Art Unit	
	Otilia Gabor	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-18 and 28-35 is/are allowed.
- 6) ☒ Claim(s) 19-27 and 36-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The amendment filed 03/16/2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 19-27, 36-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Housand et al. (U. S. Patent 6,359,681) in view of Hall et al. (U. S. Patent 5,729,376).

Housand et al. discloses an imaging optical apparatus whereby a WFOV (wide field of view) and an NFOV (narrow field of view) as well as a reflected laser image of a target is captured on a detector array 480, the device comprising:

- an optical system 407 including:
 - o a first optical operating mode, including lenses D1, 501, 502, D2, for projecting the infrared radiation emitted from the target onto the focal plane array of the detector 408 to obtain an NFOV image
 - o a second optical operating mode, including lenses D1, 501, 502, 412a, 504, D2, for projecting the infrared radiation emitted from the target onto the focal plane array of the detector 408 to obtain a WFOV image. Since both the WFOV and NFOV are used with infrared radiation, the two radiation wavelengths are the same, and thus the second optical system projects at least a portion of the incident radiation projected by the first optical system.
- a third optical system 458 configured to receive radiation having a second wavelength (laser light) reflected from the target, the laser light being emitted from a designator laser 450 toward the target and being reflected by the target, the third optical system 458 being able to project the laser designator image onto the detector array 480 and wherein
 - o the optical system 407 and the third optical system 458 share an entrance aperture 401 and a common primary optical element D1.

In the system of Housand et al. the entrance aperture 401 is shared between the infrared radiation (first wavelength) and the laser light (second wavelength) and thus it is capable of generating the infrared and laser designator images on the same detector array 480 simultaneously. To generate the different mode infrared image, the system of

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Housand et al. is capable of switching between the WFOV and NFOV image mode, by rotating the two mobile lenses 412a and 504. See Figs.4. 5a, 5b and Col.7, lines 30-67, Col.8, lines 1-37, and the abstract.

Regarding claims 19, 23, 26, 38- 43, 47-52, 56-61 Housand et al. fails to disclose that the second and third optical systems include a common primary mirror, which is a Mangin mirror with a narrowband coating. However, Housand et al. does disclose the presence of a common optical element D1 which has the same function as a Mangin mirror, namely to transmit radiation of a specific wavelength and reflect radiation in a specific wavelength range. Since the function of the optical element D1 and that of the claimed Mangin mirror is essentially the same, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the optical element D1 with the Mangin mirror of Hall et al. since there are obvious substitutes, and because Mangin mirrors are well known and used in the art for their obvious advantages. Mangin mirrors in general and as disclosed by Hall et al. include a first and second portion whereby the reflecting coating is at an interface between the two portions or alternately at a backside surface of the mirror, or could be a combination between a lens and a mirror or two mirrors separated by air space. Regarding claims 39, 48, 57 using the mirror in the claimed way constitutes an obvious design choice since applicant has not disclosed that using a cemented doublet with a narrowband filter solves any stated problems and it is obvious that the optical element D1 present in the Housand arrangement fulfills the same function.

Regarding claim 19 Housand et al. fails to disclose two distinctly separate first and second optical systems, one for the WFOV and one for the NFOV incident radiation, and he fails to disclose two distinctly separate first focal plane and second focal plane where the WFOV and NFOV images are projected. However, since the goal of the optical device of Housand et al. and the goal of the present invention is the same, namely, to obtain WFOV and NFOV as well as laser images of a target using one imaging apparatus and since the only difference between the two inventions is that one (Housand) uses one optical path where first WFOV and then NFOV images are taken by switching between the two modes of operation, and the other (present invention) uses two separate optical paths, one for WFOV and another for NFOV images, one of ordinary skill in the art at the time the invention was made would have been motivated to separate the two optical paths into a first optical system projecting WFOV image and a second optical system projecting NFOV image because that would eliminate the moving optical elements 412a and 504 (required for the mode switch between WFOV and NFOV) which in turn eliminates alignment errors between the optical elements which errors greatly contribute to the errors in the final image of the target. Also this substitution would have been obvious to one of ordinary skill in the art at the time the invention was made since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art (*Nerwin v. Erlichman*, 168 USPQ 177, 179 (CCPA)), and since it has been held that rearranging parts of an invention where the remaining elements perform the same function as before involves only routine skill in the art (*In re Karlson*, 136 USPQ 184). Also, since the two focal planes of

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the present invention coincide, having only one focal plane array satisfies the claim limitation.

Regarding claims 20, 25, 27, 37, 46, 55 Housand et al. fails to disclose a fourth optical system for emitting a second laser light from a second designator laser toward the target and projecting the reflected second laser light onto a second detector, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to include another laser light and thus another optical system and detector into the imaging device of Housand et al., in order to accurately image, recognize, detect, locate and or track the target, for it is well known in the art that combining the images of the target obtained using infrared light with images obtained using different laser lights will achieve this desired effect, and also since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art (*St. Regis Paper Co. v. Bemis Co.*, 549 F.2d 833, 193 USPQ 8 (7th Cir. 1979)).

Regarding claims 44, 53, 62 it would have been obvious to one of ordinary skill in the art to athermalize the imaging system of Housand et al. to avoid any wavelength shift due to temperature change in the system and/or to decrease the errors due to the shift of optical element response due to temperature changes in the system. One would be motivated to have a passive athermalization since an active one requires power supply and/or the use of a motor, which would increase the size and expense of the device.

Allowable Subject Matter

5. Claims 1-18, 28-35 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: The reasons for containing allowable subject matter were presented in detail in the previous Office Action.

Response to Arguments

7. Applicant's arguments with respect to claims as presented above have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Otilia Gabor whose telephone number is 571-272-2435. The examiner can normally be reached on Monday-Friday between 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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